

Claims

1. A gaming apparatus which comprises (i) a stationary base; (ii) a wheel having a rotor rotatably mounted on a vertical axis with respect to the base, the rotor having pockets on its periphery into which a ball can be received with each pocket being associated with a number; (iii) a peripheral inclined surface concentric with the rotor for receiving a ball rollably thereon in which the ball will roll into one of the pockets when the ball slows, the said surface comprising a circular, inclined ball track, disposed above, and radially outwardly of the rotor and (iv) a means to propel the ball along the ball track, each pocket having a hole in it and there being at least one air injection means which is connectable to the said hole so that a ball received in a pocket can be ejected from the pocket onto the peripheral inclined surface by air coming out of the hole.
2. A gaming apparatus as claimed in claim 1 which is a roulette wheel.
3. A gaming apparatus as claimed in claim 1 or 2 in which there is a plurality of air injection means.
4. A gaming apparatus as claimed in any one of the preceding claims in which the air injection means comprises a nozzle connected to an air pump, compressor or a source of air at above atmospheric pressure.
5. A gaming apparatus as claimed in claim 4 in which there are means to stop the rotor so that a hole in the pocket is aligned with the nozzle.
6. A gaming apparatus as claimed in any one of claims 1 to 5 in which there is a conduit leading from the air injection means to a hole in the pocket when the rotor is stopped.
7. A gaming apparatus as claimed in claim 6 in which there is (v) a plate mounted below the rotor which is rotatable with the rotor, which plate has a plurality of

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apertures through it with each aperture corresponding to a pocket and the air injection means is mounted below the plate and is located so it is sequentially aligned with each aperture as the plate rotates and (vi) conduits fixed to the upper surface of the plate, each conduit having one end connected to an aperture in the plate and the other
5 end connected to the hole in a pocket so it provides an air passage from the plate to the pocket so that, when an aperture in the plate is aligned with the air injection means, air can be blown through the aperture in the plate, down the conduit to the pocket and so eject a ball from the pocket.

10 8. An apparatus as claimed in any one of the preceding claims in which there is at least one ball detector means which can detect which pocket contains a ball.

9. An apparatus as claimed in claim 8 in which there are means to stop the rotor so that the pocket containing the ball is in the correct position in relation to the means to
15 propel the ball along the ball track and the aperture in the plate connected to that pocket by a conduit is directly in line with the air injection means.

10. An apparatus as claimed in claim 9 in which there is a computer control means in which the output from the ball detector means is fed to the computer control means
20 and one or more of the motors or valves controlling the rotation of the rotor, the air injection means, the direction and rotational speed of the rotor, the means to propel the ball along the ball track, the random firing of the ball and control of its speed, the duration and random control of each spin and position of stopping of the rotor is controlled by the computer control means.

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11. An apparatus as claimed in any one of the preceding claims in which there is a motor able to rotate the rotor and there are control means for the motor which enables the motor to be stopped so that the rotor is accurately positioned.

30 12. An apparatus as claimed in any one of claims 1 to 11 in which there is a fixed rim positioned peripherally outward and at the top of the ball track.

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13. An apparatus as claimed in any one of claims 1 to 12 in which the means for propelling the ball along the ball track comprise means to give an impulse to the ball as it is positioned on the ball track.

5 14. An apparatus as claimed in claim 13 in which the means to give an impulse to the ball comprises at least one air jet positioned at the outer edge of the ball track which can direct a jet of air at the ball thus impelling the ball along the ball track.

10 15. An apparatus as claimed in claim 14 in which there are a plurality of air jets positioned around the edge of the ball track.

16. An apparatus as claimed in claim 14 or 15 in which there is at least one air jet directed to propel a ball in one direction around the ball track and at least one air jet directed to propel the ball in the opposite direction.

15 17. An apparatus as claimed in any one of claims 13 to 16 in which there is a rim fixed to the outer edge of the ball track and, in use, when the ball reaches the outside edge of the ball track it is held against the rim by the action of centrifugal force and there are control means which operate the air jets to give an impulse or impulses of
20 compressed gas to the ball in a single random blast of air or single puffs of air, and, after a predetermined time, the air jets can be turned off so the ball then spirals down the ball track to the contra rotating wheel.

25 18. An apparatus as claimed in any one of the preceding claims in which the outermost section of the ball track slopes at an angle to the horizontal which is less than the angle at which the inner section of the ball track slopes to the horizontal.

19. An apparatus as claimed in claim 18 in which the angle to the horizontal can change from twenty degrees adjacent to the wheel to five degrees adjacent to the rim.

30 20. An apparatus as claimed in any one of claims 1 to 19 in which there is a ball reader which can automatically detect and record the position of the ball in a pocket.

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21. An apparatus as claimed in any one of the preceding claims in which there is a transparent cover over the apparatus.
22. An apparatus as claimed in any one of claims 14 to 22 in which there is a transparent sheet which fits into the apparatus in the rim above the air jets.
23. An apparatus as claimed in claim 22 in which the transparent sheet comprises polarised glass.
24. An apparatus as claimed in claim 22 or 23 in which the rotor is mounted so that it fits beneath the sheet and above the sheet is a static turret in line with the rotor which turret has a smooth reflective surface.
25. An apparatus as claimed in any one of the preceding claims in which there are a plurality of ball stops uniformly located around the peripheral inclined surface.
26. An apparatus as claimed in any one of the preceding claims in which the motor is a stepper motor.
27. An apparatus as claimed in any one of the preceding claims in which there are solenoid controlled valves which operate to control the flow of air through the air jets and the air injection means.
28. An apparatus as claimed in any one of the preceding claims which is automatic and there are means whereby bets can be placed via slots or other similar mechanism using coins, notes or tokens and the wheel is spun automatically and there is a payout mechanism which can calculate the winnings.
29. A gaming system which comprises a plurality of gaming apparatus as claimed in any one of the preceding claims and means to coordinate the operation of each of the gaming apparatus so that they can operate in a substantially synchronised manner.

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30. A method for launching a ball from a pocket in a gaming apparatus which comprises (i) a stationary base; (ii) a wheel having a rotor rotatably mounted on a vertical axis with respect to the base, the rotor having pockets on its periphery into which a ball can be received with each pocket being associated with a number; (iii) a peripheral inclined surface concentric with the rotor for receiving a ball rollably thereon in which the ball will roll into one of the pockets when the ball slows, the said surface comprising a circular, inclined ball track, disposed above, and radially outwardly of the rotor, the method comprising directing an air jet at the ball from a hole in the pocket to eject the ball from the pocket.
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31. A method as claimed in claim 30 in which there is an air injection means which injects air through the hole in the pocket.
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32. A method as claimed in claim 31 in which the air injection means comprises a nozzle connected to an air pump, compressor or a source of air at above atmospheric pressure.
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33. A method as claimed in claim 32 in which the rotor is stopped so that a hole in the pocket is aligned with the nozzle.
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34. A method as claimed in any one of claims 30 or 31 in which there is a conduit leading from the air injection means to a hole in the pocket and, when the rotor is stopped and air is pumped down the conduit to eject the ball from the pocket.
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35. A method as claimed in any one of claims 30 to 34 in which the ball is propelled along the ball track by a ball propelling means.
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36. A method as claimed in any one of claims 30 to 35 in which there is a fixed rim positioned peripherally outward and at the top of the ball track and the ball is ejected from the pocket up to the rim.
37. A method as claimed in any one of claims 30 to 36 in which the ball is given an impulse to propel the ball along the ball track.

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38. A method as claimed in claim 37 in which the ball is given an impulse by at least one air jet positioned at the outer edge of the ball track which directs a jet of air at the ball thus impelling the ball along the ball track.

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39. A method as claimed in claim 38 in which the ball is given an impulse by a plurality of air jets positioned around the edge of the ball track.

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40. A method as claimed in any one of claims 38 or 39 in which there is a rim fixed to the outer edge of the ball track and when the ball is ejected from a pocket and reaches the outside edge of the ball track it is held against the rim by the action of centrifugal force and the air jets are operated by a control means to give an impulse or impulses of compressed gas to the ball in single random blast of air or single puffs of air, and, after a predetermined time, the air jets are turned off so the ball then spirals down the ball track to the contra rotating wheel.

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41. A method as claimed in any one of claims 30 to 40 in which there is (v) a plate mounted below the rotor which is rotated with the rotor, which plate has a plurality of apertures through it with each aperture corresponding to a pocket and (vi) conduits fixed to the upper surface of the plate, each conduit having one end connected to an aperture in the plate and the other end connected to the hole in a pocket so it provides an air passage from the plate to the pocket and when, an aperture in the plate is aligned with the air injection means, air is blown through the aperture in the plate, down the conduit to the pocket to eject a ball from the pocket.

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42. A method as claimed in any one of claims 35 to 41 in which the pocket containing the ball is detected by a ball detector means and the rotor is stopped so that the pocket containing the ball is in the correct position in relation to the means to propel the ball along the ball track.

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43. A method as claimed in claim 41 in which the pocket containing the ball is detected by a ball detector means and the rotor is stopped so that the pocket

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containing the ball is in the correct position in relation to the means to propel the ball along the ball track and the aperture in the plate connected to that pocket by a conduit is directly in line with the air injection means.

5 44. A method as claimed in claim 43 in which there is a computer control means and the output from the ball detector means is fed to the computer control means and one or more of the motors controlling the rotation of the rotor, the air injection means, the direction and rotational speed of the rotor, the means to propel the ball along the ball track, the random firing of the ball and control of its speed and the duration and
10 random control of each spin and position of stopping of the rotor is controlled by the computer control means.

45. A method for operating a gaming apparatus as claimed in any one of claims 30 to
15 44 in which the rotor is rotated by a motor and there are control means for the motor which stop the motor so that the rotor is accurately positioned.

46. A method for operating a gaming machine as claimed in claim 44 in which one or more means of the stopping of the motor, speed and direction of rotation of the rotor, the timing of the means for ejecting the ball from the pocket, the operation and
20 duration of the means to propel the ball along the ball track are controlled by an operator.

47. A method as claimed in claim 46 which is completely automatic, semi automatic
25 or an operator controls operations such as starting the wheel, deciding when no more bets should be placed and starting the stopping procedure.

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